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Mrs. Wilkes

UNITED STATES DEPARTMENT OF AGRICULTURE
Bureau of Agricultural Engineering

S. H. McCrory, Chief

MONTHLY NEWS LETTER

Vol. 1.

August, 1931

No. 2

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: Elmer Johnson, senior agricultural engineer of :
: the Bureau, died suddenly on July 28, in Washington, :
: from a heart attack. Mr. Johnson joined the depart- :
: ment in 1914. For about 12 years he was engaged at :
: Delta Laboratory, Tallulah, La., in studies on mechan- :
: ical equipment for the distribution of insecticides, :
: particularly airplane dusting to control the cotton :
: boll weevil. For some months past he has been engaged :
: in the preliminaries of an investigation on machinery :
: for harvesting sugarcane. Mr. Johnson's remains were :
: sent to the home of his parents, in Kansas. :
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On August 11 Mr. McCrory attended the exercise known as "Delta Day" put on by the Mississippi Agricultural Experiment Station (Delta Branch) at Stoneville, Miss. From Stoneville he visited the forage drying work at Jeanerette, La., and the sugar cane drainage experiments at Houma, La. In company with Chas. A. Bennett and J. W. Randolph he next went to Corpus Christi, Texas in connection with the cotton machinery investigations. He then went to Tallulah, La., for a conference regarding the pink boll worm control experiments. Before returning to Washington he will visit Ames, Iowa in connection with the studies of corn production machinery.

The Bureau now has a rather complete outfit for copying, duplicating, and assembling reports of all kinds. There has recently been acquired an electrically operated mimeograph which is self-feeding and equipped with a device for automatically dropping in slip sheets between printed sheets so as to prevent the fresh ink from getting on the backs of the printed sheets. This device is especially useful when it is desired to print both sides of the paper. The Bureau has also purchased an 11 x 14 photo copying outfit equipped with two large mercury vapor studio type lamps to furnish illumination. The machine is equipped with both board type and book type of copy holder so that matter of all kinds can be rapidly duplicated. A print washer is included with the equipment. A rotary assembling table and stitching machine completes the outfit.

M. W. Tilton has been appointed topographic draftsman to succeed Frank Boynton who retired on June 30 last.

S. P. Lyle was in New England from July 27 to August 8. During the first week of this trip he was accompanied by R. M. Merrill in arranging with extension directors the dates for corn borer control demonstrations. The next week was spent in Aroostook County, Maine, studying the utilization of mechanical power and machinery in potato growing. State extension agricultural engineers were appointed by the State extension officers July 1 in Maine, Massachusetts and Connecticut. Conferences on the work to be performed by these men was a feature of the trip. About the first of September Mr. Lyle will make a trip through Mississippi, Louisiana, and Texas to study the mechanical harvesting of cotton with a view to formulation of extension recommendations.

P. D. Southworth has been given a temporary appointment as assistant agriculturalist, and Walter A. Vaught as assistant civil engineer, to assist O. M. Page on land appraisal work being done for the War Department along the lower Mississippi River.

The State highway department of Delaware has been placed in charge of the maintenance of some 300 miles of agricultural drainage ditches in Kent County, Delaware. L. A. Jones visited Dover recently to confer with the highway officials regarding the methods of maintenance best adapted to the conditions.

The installation of measuring devices on the Statesville soil erosion experiment farm will be completed about the end of August.

D. L. Yarnell has been calibrating weir notches for use in runoff and silt measuring devices for use in the soil erosion investigations. The development of these notches will make it possible to measure runoff and silt losses from 1/100 and 1/10 acre plots with equipment costing not over \$30 to \$50 per plot. Mr. Yarnell is now at Berkeley, Calif., making experiments in conjunction with F. C. Scobey on the Tiger Creek flume. Mr. Scobey is obtaining data regarding the value of Kutter's n while Mr. Yarnell is investigating the flow of water around bends.

W. D. Ellison has begun an investigation of the control of growth in drainage ditches by poisoning with sodium chlorate. Some experiments that have been carried on by the Ohio Experiment Station during the past season indicate that there may be possibilities along this line.

The following items relating to the soil erosion projects were submitted by C. E. Ramsor:

R. W. Baird reports that crops are in good condition on the Tyler Soil Erosion Farm. The corn has almost matured and cotton is beginning to open.

R. R. Drake and P. L. Hopkins are making a survey of a portion of the Sni-A-Bar Farms near Grain Valley, Missouri preliminary to preparing plans for erosion control.

H. O. Hill, with Henry Dunlavy of the State Station, reports that the Blacklands Soil Erosion Experiment Station near Temple, Texas was visited by about 100 farmers including Senator Connally from Falls County, Texas. The farmers were apparently favorably impressed and expressed a desire to return each year to observe results.

D. L. Yarnoll visited the Bethany Soil Erosion Farm during the latter part of July with a view to developing a suitable run-off measuring device for use on small plots. A. T. Holman reports that a rain of about 2 inches the latter part of July saved the corn crop and now a fairly good crop is expected.

A short intense rain of about two inches which fell southwest of Colfax, Washington not far from the Pullman soil erosion experiment farm on July 31 caused the worst soil erosion in the history of that State. Mr. McGrew states that one field of 20 to 35 acres was virtually riddled with gullies 3 to 6 inches wide and to the depth of the plow sole.

Plans for the engineering experiments for the Page County, Iowa erosion project were prepared at Clarinda, Iowa by C. E. Ramsor and R. A. Norton the latter part of July. Terrace construction work will proceed on this project as soon as the plans are approved by the Washington office and the Iowa State College.

W. W. McLaughlin spoke July 22 before the Western Extension Workers at their convention at Logan, Utah. The subject was "Economic Use of Irrigation Water."

H. F. Blaney and M. R. Lewis attended the conference of the Western Irrigation and Drainage Research Workers Assn. at the University of Arizona at Tucson. R. L. Parshall was elected President of the organization, and M. R. Lewis was elected Secretary for the coming term. This group meets every two years to discuss in detail research

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methods and the most recent research findings of those working in irrigation and drainage. The meetings are entirely informal, with papers and round table discussions. Mr. Lewis, while enroute to and from the meeting of the Association stopped to inspect work of the Bureau in southern California, also to inspect pumping equipment and wells, and to examine the proposed Laguna de Santa Rosa drainage project in Sonoma County, Calif.

L. T. Jessup is securing data in the field and preparing them for the Blitzen River adjudication of water rights, in which the Bureau of Biological Survey is interested. Numerous sections of sage brush have been examined to determine the age of this growth, as an index of the possible irrigation of land upon which the sage brush is growing. This brush is killed out by continued irrigation.

Wells A. Hutchins returned to Berkeley July 12 after completing part of a field study of the ownership of return waters from irrigation. The phenomenon of return waters, and their effect on water rights of users on long stream systems, have long been recognized. The general practice among State officials has been to regard these waters as a part of the stream system, or as public waters, and to administer the streams accordingly. On the other hand, many claims have been made, particularly within the past 15 years, that projects may recapture their return flow or may dispose of it to other projects. In various instances drainage waters have actually been disposed of for compensation; in others, headgate diversions of projects discharging drainage water into streams have been increased by the amount of such discharge. Advocates of public ownership of return waters generally concede the right of an irrigation enterprise to the reuse of its drainage waters before it escapes from the project, but deny the right to recapture such waters after leaving the project and entering a natural channel. Controversies are numerous, and the legal features in some States are still uncertain. Several suits over return waters have been brought during the present season as a result of water shortages.

Mr. Hutchins left Berkeley August 4 for Kennewick, Washington, for the purpose of making an economic survey of Richland Irrigation District. This work was undertaken upon request of the District and the bondholders. Washington State College will cooperate in the survey.

R. L. Parshall is studying deflector riffles in connection with his sand trap investigations. It was found in using the 6-foot width of flume that this was too narrow to get a good idea as to the possibilities of these riffles, and also it did not have sufficient capacity to throw light on the effect of height of riffle. The old apparatus has therefore been removed and a new flume installed having

a length of about 40 feet, width of 8 feet, and depth of approximately 24 inches. The new setting is a decided improvement over the old flume. A new vortex tube of improved design has been installed. In the present set-up, provision has been made to give some attention to the quantitative amounts of sand trapped at various points along the floor line of the flume.

Revision by Harry F. Blaney and Martin R. Huberty of California Division of Engineering and Irrigation Bulletin on "Cost of Water to Irrigators in California", has been published as Bulletin 36 of the California Department of Public Works. Data on the cost of water to irrigators under 34 public utility water companies, 111 mutual water companies, 73 irrigation districts, and many farm irrigation pumping plants are presented. The annual cost of irrigation per acre for the year 1929 varied from a minimum of 37 cents to a maximum of \$84.33. In addition to the annual cost of water, information on the type of irrigation system, locality, age, source of water, acreage irrigated, kind of crop, capital invested, and water charges are compiled and summarized in tables presented in the report.

The Berkeley office was honored by the visit early in August of Dr. W. W. Stockberger, Director of Personnel and Business Administration in the Office of the Secretary. Such visits are very much appreciated as they stimulate interest in the Department as a whole.

H. H. Barrows, Assistant to Mr. McGrory in the Washington office, visited the western field during July. Those working in the West were glad of the opportunity to meet Mr. Barrows.

Fred C. Scoboy, as Chairman of the Irrigation Hydraulics Section of the American Society of Civil Engineers, attended the general meeting in Tacoma.

Leslie Bowen has been transferred from the Bear River Migratory Bird Refuge work to this Bureau, and located temporarily at Bonners Ferry, Idaho, assisting Messrs. Jessup and Young.

The cooperative project with the Forest Service in Devils Canyon in southern California is now in full swing. This project has as one of its main objects the determination of the effect of stream bed vegetative growth upon the flow of small streams.

The irrigation water supply of the West for 1931 is from one-third to two-thirds of the normal amount and will average less than 50 per cent.

H. F. Blaney gave a radio talk on the activities of the Bureau of Agricultural Engineering, under the auspices of the Los Angeles Federal Business Association.

Mr. McCrory spent July 23 at Toledo, O., where he inspected the new quarters and visited the recently acquired experimental farm operated jointly by the Bureau of Entomology and Agricultural Engineering for corn borer investigations.

R. B. Gray returned to Toledo August 7 from a four-days' trip to the New England States, where he reviewed the progress of the work and conferred with Professor Gunness of Massachusetts concerning the proposed cooperative project on corn production studies.

Frank Irons and V. D. Young, under the direction of R. M. Merrill, have been and are giving low-cutting binder and plowing demonstrations in order to help show the New England farmer how the corn borer may be suppressed in that area. At the same time, valuable contacts are made and information as to machinery improvement are secured. Much interest is being manifested by the farmers and others. Professor C. O. Reed, of Ohio State University, was also an interested observer and commented very favorably on the progress being made.

S. W. McBirney has practically completed his report covering the use of the Rototiller (a German machine) in cooperative experiments with the Bureau of Entomology on the control of the wire worm in Washington State. The results obtained indicated very little promise from this machine, principally because of the wide spacing and narrowness of the teeth and their low relative peripheral velocity with respect to the forward speed of the machine.

O. K. Heddon has completed his report on burner investigations, in cooperation with the Bureau of Entomology, for controlling the pea aphid attacking alfalfa in the Antelope Valley of California. The results do not seem to be as conclusive this year as last, as the difference between the infestation on the burned and unburned plots was not so marked as in previous years.

Chas. P. Hartley, assistant agronomist, has been transferred from the Office of Plant Quarantine to this Bureau to assist in the European corn borer control work at Toledo, Ohio.

Wallace Ashby is making a rather extended trip in the Middle West for preliminary conferences relating to structures research work to be taken up.

M. A. R. Kelley is in Wisconsin in connection with the dairy barn studies being made in cooperation with the University of Wisconsin and the Bureau of Dairying on the Brookhill Farm. Mr. Kelley will proceed from Wisconsin to Maine for preliminary work relating to potato storage investigations.

W. M. Hurst is in Nome, Texas continuing studies begun last year on artificial rice drying in that State. These experiments will last until about November 1. Walter H. Redit has been appointed junior agricultural engineer to assist Mr. Hurst in these experiments.

M. C. Betts reports that bids are being taken on the equipment depot designed by this Bureau for the Bureau of Public Roads and to be erected at Ogden, Utah. Work is in progress on plans for a similar structure for that Bureau at Portland, Oregon. Preliminary studies are under way on an experimental poultry feeding and fattening station for the Bureau of Animal Industry to be erected at the Beltsville Experiment Farm.

